Title: The Only Game in Town

Brief Overview:

Using the 1998 World Cup as a common thread, students will learn how mathematics is involved in sports through varied activities involving statistics, scale drawing, measurement, computation, and a writing activity.

Links to NCTM Standards:

• **Mathematics as Problem Solving**
Students will demonstrate their ability to solve mathematical problems relating to their particular task.

• **Mathematics as Communication**
Students will demonstrate their ability to communicate mathematically by writing an article for their school newspaper.

• **Mathematics as Reasoning**
Students will demonstrate their ability to reason mathematically by making comparisons based upon discussions, observations and calculations.

• **Mathematical Connections**
Students will develop a global perspective through studying participation in the World Cup and making statistical comparisons.

• **Number and Number Relationships**
Students will demonstrate mathematical strategies to solve various problems and analyze appropriateness of solutions such as: proportions, scale models, outcomes.

• **Computation and Estimation**
Students will determine areas of 2-D and 3-D shapes and will calculate team scores.

• **Patterns and Functions**
Students will identify geometric patterns found in national flags.

• **Statistics**
Students will demonstrate their ability to collect, organize, and display data in frequency distributions charts. Students will demonstrate ability to compare two sets of graph data.

• **Geometry**
Students will demonstrate their understanding of geometric relationships by manipulating spheres.

• **Measurement**
Students will demonstrate their ability to determine standard measurements of various geometric figures and calculate their areas. Students will demonstrate their ability to convert standard units of measure.

Grade/Level:

Grades 6-8

Duration/Length:

This learning unit is designed for four class periods with the writing component being either a fifth day or a homework assignment. Each of the four units may stand independently and, except for Data Sheet 1, information from one activity is not required for another.

Prerequisite Knowledge:

Students should have working knowledge of the following skills (for example):

• Ratio and proportion in relation to scale drawings
• Frequency tally charts
• Bar graphs
• Measuring in standard units
• Standard measurement conversions
• Geometric patterns
• Evaluation of formulas
• Research methods using reference materials
• Reading data from charts
• Proportions and percent error
• Vocabulary: radius, radii, circle, diameter, circumference, sphere, frequency distribution, tally, percentage, polygons

Objectives:

Students will:

• work in cooperative groups.
• make a scale model.
• make accurate calculations using appropriate units of measure.
• make comparisons and draw conclusions using mathematical data.
• determine geometric patterns.
• write an article incorporating information from units presented.
• complete frequency tally charts, use proportions to make predictions, calculate . percent error, and graph results.

Materials/Resources/Printed Materials:

• Data Sheets 1, 2, 3
• Activity Sheets 1-5
• Construction Paper
• Crayons, chalk
• Soccer ball(s), small ball (such as tennis ball, nerf ball)
• Yard stick
• String
• Regular calculator
• Ruler with standard measures
• Reference materials: atlas, almanac, encyclopedia
• Calculator
• Optional: TI 83 graphing calculator; computer with reference software and/or Internet capabilities

Development/Procedures:

Day 1:

- The teacher will introduce the unit by leading a discussion on soccer and its popularity world-wide. How is mathematics involved in this activity? Soccer balls will be available to inspect and there should be a discussion as to the geometric figures in the construction of the ball. Distribute one small ball to each group.
- The teacher should review measuring objects and evaluating formulas. Activity 1 worksheets will be distributed and students will work cooperatively.

Day 2:

- The teacher will distribute activity 2 worksheets 1 & 2 to complete. Upon completion of the activity, the students will discuss which teams will go to the second round.
- Discussing the second round will provide the opportunity for students to solve Activity 2 Worksheet 3.

Day 3:

- Start with a discussion of what symbols represent each team. Lead the discussion into the flags of the countries. Explain that in order for a flag to be official, each country determines the ratio of flag height to length. Students will use this information during the activity.
- Distribute the worksheet. Students may work in groups for the first part of the activity. For the second and third parts, students must complete the work individually.

Day 4:

- The teacher will introduce this lesson by emphasizing that soccer is the most popular sport worldwide. Data Sheet #1 giving the list of thirty-two participating countries will be distributed. Using atlases, students will categorize the countries by continent, writing the appropriate names under the correct designations. They will then tally the total countries representing each continent on Worksheet #1 for Activity 4.
- Next, the teacher gives the total goals scored for a particular continent to the class (or gives one different continent goal total to each group). Students then use proportions to calculate the predicted goal scored for the remaining four continents. This prediction is then plotted on the double bar graph provided on Worksheet #2, Activity 4.
- Data Sheet #2, containing each country's individual player's goals scored totals, is now distributed. Students will use the player's country to categorize and tally the actual goals scored for each continent designation. These totals are then plotted on the double bar graph on Worksheet #2, Activity 4.
- Worksheet #3, Activity 4 is now distributed. Students transfer the actual goals scored and the predicted goals scored to the appropriate spaces. Then students calculate the percent error of their predictions following the worksheet template.
- Students then write an explanatory paragraph to explain the double bar graph data and the error difference that occurred between the predicted and actual goals scored.

Day 5:

- Writing activity. This may be done either as class work or as a homework assignment.

Performance Assessment:

Each of the four activities and the writing activity have a rubric for assessment purposes. These should be provided to the students at the beginning of each activity.

Extension/Follow Up:

Students can research soccer in their community by contacting the local recreation department. Information they can find includes the number and ages of players, and number of teams compared to other sports.

Students interested in other sports can rewrite any of the four activities and relate it to their sport.

Students can compare soccer outcomes with basketball. They can pick the top scoring basketball teams and determine which team plays each other and decide second round matchings.

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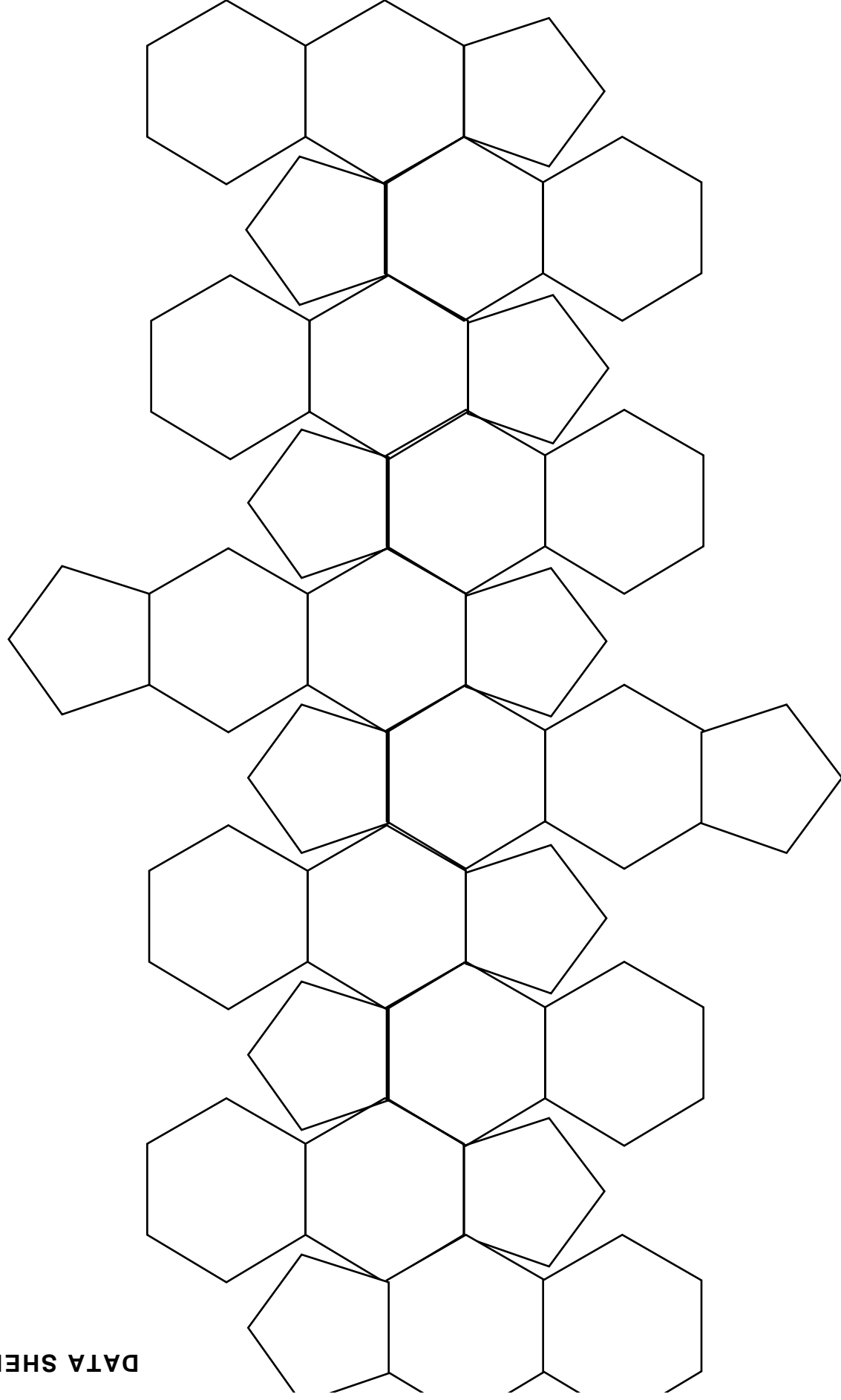Archdiocese of Baltimore

SOCCER BALL ' NET '
Truncated Icosahedron

Area of Soccer Ball Calculation Worksheet

1. Computing the Surface Area of a Sphere using the provided formulas.

   Circumference = 2 r or d   Area of a Circle = r^2

   Step 1: Using the materials provided, find the circumference of the small ball.
            Circumference = _____.

   Step 2: Take the chalk and trace the circumference of the small ball.

   Step 3: Using the scissors, cut the small ball in half along the chalk line.

   Step 4: Measure the diameter of the cut edge of the ball.
            What is the diameter? _____.
            What is the radius? _____.
            What geometric shape did you just measure? _____.

   Step 5: A circle on a flat sheet of paper, is how many dimensions? _____.
            A sphere is how many dimensions? _____.

   Step 6: Mathematicians have found the surface area of a sphere is equal to
            the area of four (4) circles. Therefore, the surface area of a sphere
            would be?_____.

   Step 7: Using what you have just learned, can you determine the
            circumference of a soccer ball?_____.
            Circumference = _____

   Step 8:   Now that you have found the circumference of the soccer ball,
             calculate the radius.
             Radius = _____

   Step 9:   Using the above information, what is the surface area of a soccer
             ball?
             Surface area =_____
             (Hint : Use the formula from Step 6.)

Comparison Worksheet

Step 1: What is the surface area of the soccer ball that you calculated on
worksheet 1?_____

Step 2: How many geometric shapes make up the surface of the soccer ball?
_____

Step 3: What are these shapes? _____.

Step 4: How many of each shape in Step 3 are there?_____.

Step 5: Using Data Sheet 3, divide one of each type of polygon into triangles.

Step 6: Using the triangle area formula (Area= 1/2 base X height), determine
the area of each triangle.

Step 7: Add the results for each polygon.
Hexagons : _____ + _____ + _____ + _____=_____.
Pentagons : _____ + _____ + _____ =_____.

Step 8:   Multiply the area of the hexagon by the total number of hexagons.
_____ X_____= _____ in^2.

Step 9:   Multiply the area of the pentagon by the total number of pentagons.
_____ X_____= _____ in^2.

Step 10: Add the total area of the hexagons and the pentagons.
Total Area = _____.

Step 11: Is this area the same as the surface area from step 1?_____
If they are different, can you explain why?_____
_____
If they are the same, can you explain why?_____
_____

Scoring Key

Score student worksheet using the following key:

5 pts	Meets all of the following criteria.
4 pts	Meets four of the following criteria.
3 pts	Meets three of the following criteria.
2 pts	Meets two of the following criteria.
1 pts	Meets one of the following criteria.
0 pts	Meets none of the criteria.

Criteria for grading:
Completed the entire sheet and did all the required work.

Completed 3/4 of the worksheet and did all the required work.

Completed 1/2 of the worksheet and did all of the work for the portion completed.

Completed 1/4 of the worksheet and did all of the work for the portion completed.

Completed one or two questions and very little calculations.

Completed nothing on the worksheet.

World Cup Soccer 1998

The World Cup Soccer meet is held every four years in a different country. The meet consists of 32 teams which are divided into 8 groups. Each team plays three other teams in its group in the first round. In 1999, the 3rd Women's World Cup kick-off will begin next summer. Seven U.S. cities will host games including : Los Angeles, California; Chicago, Illinois; Washington, D.C.; and Portland, Oregon.

World Cup Soccer Teams

Group A	Group B	Group C	Group D
Brazil	Austria	Denmark	Bulgaria
Morocco	Cameroon	France	Nigeria
Norway	Chile	Saudi Arabia	Paraguay
Scotland	Italy	South Africa	Spain

Group E	Group F	Group G	Group H
Belgium	Germany	Colombia	Argentina
Mexico	Iran	England	Croatia
Netherlands	United States	Romania	Jamaica
Korea Republic	Yugoslavia	Tunisia	Japan

World Cup Soccer Standing (1st round)

You are the official to determine which teams will go from Round 1 to Round 2 in the Soccer World Cup. You must complete the following tasks:

Step 1: Calculate the total points for teams listed in Groups A - H, (Data Sheet 1).

Step 2: 3 points are awarded for each win, and 1 point for each tie. The two top teams in each group will advance to the 2nd Round.

First Round Standings (Activity 2 Worksheet 2)

Group A

	W	L	T	GF	GA	PTS
Brazil	2	0	0	5	1	
Norway	0	0	2	3	3	
Morocco	0	1	1	2	5	
Scotland	0	1	1	2	3	

Group B

	W	L	T	GF	GA	PTS
Italy	1	0	1	5	2	
Chile	0	0	2	3	3	
Austria	0	0	2	2	2	
Cameroon	0	1	1	1	4	

Group C

	W	L	T	GF	GA	PTS
France	2	0	0	7	0	
Denmark	1	0	1	2	1	
South Africa	0	1	1	1	4	
Saudi Arabia	0	2	0	0	5	

Group D

	W	L	T	GF	GA	PTS
Nigeria	2	0	0	4	2	
Paraguay	0	0	2	0	0	
Spain	0	1	1	2	3	
Bulgaria	0	1	1	0	1	

First Round Standings (Activity 2 Worksheet 2)

Group E

	W	L	T	GF	GA	PTS
Netherlands	1	0	1	5	0	
Mexico	1	0	1	5	3	
Belgium	0	0	2	2	2	
South Korea	0	2	0	1	8	

Group F

	W	L	T	GF	GA	PTS
Germany	1	0	1	4	2	
Yugoslavia	1	0	1	3	2	
Iran	1	1	0	2	2	
United States	0	2	0	1	4	

Group G

	W	L	T	GF	GA	PTS
England	1	0	0	2	0	
Romania	1	0	0	1	0	
Columbia	0	1	0	0	1	
Tunisia	0	1	0	0	2	

Group H

	W	L	T	GF	GA	PTS
Argentina	2	0	0	6	0	
Croatia	2	0	0	4	1	
Japan	0	2	0	2	2	
Jamaica	0	2	0	1	8	

First Round Standings (Activity 2 Worksheet 2) Answer Key

Group A

	W	L	T	GF	GA	PTS
Brazil	2	0	0	5	1	6
Norway	0	0	2	3	3	2
Morocco	0	1	1	2	5	1
Scotland	0	1	1	2	3	1

Group B

	W	L	T	GF	GA	PTS
Italy	1	0	1	5	2	4
Chile	0	0	2	3	3	2
Austria	0	0	2	2	2	2
Cameroon	0	1	1	1	4	1

Group C

	W	L	T	GF	GA	PTS
France	2	0	0	7	0	6
Denmark	1	0	1	2	1	4
South Africa	0	1	1	1	4	1
Saudi Arabia	0	2	0	0	5	0

Group D

	W	L	T	GF	GA	PTS
Nigeria	2	0	0	4	2	6
Paraguay	0	0	2	0	0	2
Spain	0	1	1	2	3	1
Bulgaria	0	1	1	0	1	1

First Round Standings (Activity 2 Worksheet 2) Answer Key

Group E

	W	L	T	GF	GA	PTS
Netherlands	1	0	1	5	0	4
Mexico	1	0	1	5	3	4
Belgium	0	0	2	2	2	2
South Korea	0	2	0	1	8	0

Group F

	W	L	T	GF	GA	PTS
Germany	1	0	1	4	2	4
Yugoslavia	1	0	1	3	2	4
Iran	1	1	0	2	2	3
United States	0	2	0	1	4	0

Group G

	W	L	T	GF	GA	PTS
England	1	0	0	2	0	3
Romania	1	0	0	1	0	3
Columbia	0	1	0	0	1	0
Tunisia	0	1	0	0	2	0

Group H

	W	L	T	GF	GA	PTS
Argentina	2	0	0	6	0	6
Croatia	2	0	0	4	1	6
Japan	0	2	0	2	2	0
Jamaica	0	2	0	1	8	0

Scoring Rubric

THE ONLY GAME IN TOWN
(Activity 2 worksheet 2)

4   -   **Correct calculations for 7 - 8 groups**

3   -   **Correct calculations for 4 - 6 groups**

2   -   **Correct calculations for 2 - 3 groups**

1   -   **Correct calculations for 1 group**

0   -   **No correct calculations**

Pick one group and determine the group's playing pattern.

You are in charge of hiring referees for each game. How many referees would need to be hired if each group of 4 plays each other once? Explain your answer in 1 - 2 paragraphs.

Activity 3
Be sure to read all instructions and the grading criteria before starting the activity.

1. Select <u>one group of four countries</u> from Data Sheet 2. Using an almanac, atlas, the encyclopedia, or the computer, research the flags of these four countries. Write a brief (1-2 sentence) description of each flag.
Now compare and contrast the four flags using their geometric patterns and make-up. Make a list of all patterns you observe.
2. Measure the flags you have selected to the nearest 1/4 in. State the ratio of the length to the width. Now compare these with the official ratios, Data Sheet 3, posted in the classroom. In complete sentences, state your conclusions about the accuracy of the pictured flags.
3. Select <u>one</u> of your original flags. Using the official ratio, Data Sheet 3, set up a proportion to calculate the length and width of an official flag which you can make using the paper you have been given. Now make this flag. Be sure that <u>all</u> sections and decorations on the flag are to the correct scale.

<u>Scoring</u>
 4 points - Worked well in group
                Data is complete for all sections
                Data is well-organized for all data
                Measurements accurate within 1/4 inch
                Computations correct
                Written work complete and grammatically correct.
                Flag completed correctly
 3 points - Worked well in group
                Data is mostly complete
                Data is organized
                Measurements within 1/2 inch
                Computations correct
                Written work complete
                Flag completed
 2 points -   Worked satisfactorily in group
                Data mostly complete
                Data not organized
                Measurements within 1/2 inch
                Computational errors
                Written work incomplete; Flag completed
 1 point -   Had difficulty working in group
                Data not complete
                Data not organized
                Measurements not within 1/2 inch
                Computational errors
                Written work incomplete; Flag incomplete
 0 points -   No response

Data Sheet 3 (Activity 3)

Below are the official ratios of height to length for the national flags of 32 countries competing in the 1998 World Cup. [http://www.flags.ndirect.co.uk]

Argentina	1:2
Austria	2:3
Belgium	13:15
Brazil	7:10
Bulgaria	2:3
Cameron	2:3
Chile	2:3
Columbia	2:3
Croatia	1:2
Denmark	2:3
England	3:5
France	2:3
Germany	3:5
Iran	4:7
Italy	2:3
Jamaica	1:2
Japan	7:10
Korea Republic	2:3
Mexico	4:7
Morocco	2:3
Netherlands	2:3
Nigeria	1:2
Norway	8:11
Paraguay	2:3
Romania	2:3
Saudi Arabia	2:3
Scotland	2:3
South Africa	2:3
Spain	2:3
Tunisia	2:3
United States	10:19
Yugoslavia	1:2

Activity 4

Players from which continent scored the most goals in World Cup 1998?

<u>Statement of Problem</u>

This is an investigation to determine whether the number of goals scored by players from each continent represented in the World Cup Soccer Tournament, can be predicted by the number of countries representing each continent.

<u>Procedure</u>

• Using Data Sheet #2 (the list of thirty-two countries participating in World Cup 1998), sort the countries by continent, writing the appropriate names in the correct column. Then tally the total countries representing each continent on Worksheet #1.

• Your teacher will now supply the total goals scored by players from a particular continent. Use proportions to calculate the predicted goals scored for the remaining four continents. Plot your results on the bar graph provided on Worksheet #2.

• Using Data Sheet #4, (containing each country's individual player's goals scored total), sort and tally the actual goals scored for each of the four continents that you made predictions. In a different color than the predicted goals, plot the actual goals scored on the bar graph on Worksheet #2, Activity 4.

• Transfer the actual goals scored and the predicted goals scored to the appropriate spaces on Worksheet #3. Follow the worksheet directions to calculate the percent error of your predictions.

• Write a paragraph to explain the data that you plotted on the double bar graph (predicted and actual). If there is a difference between the actual goals and your predictions, indicate the error difference and explain why this difference exists.

Frequency Distribution Worksheet

1. Number of participating countries sorted by continent.
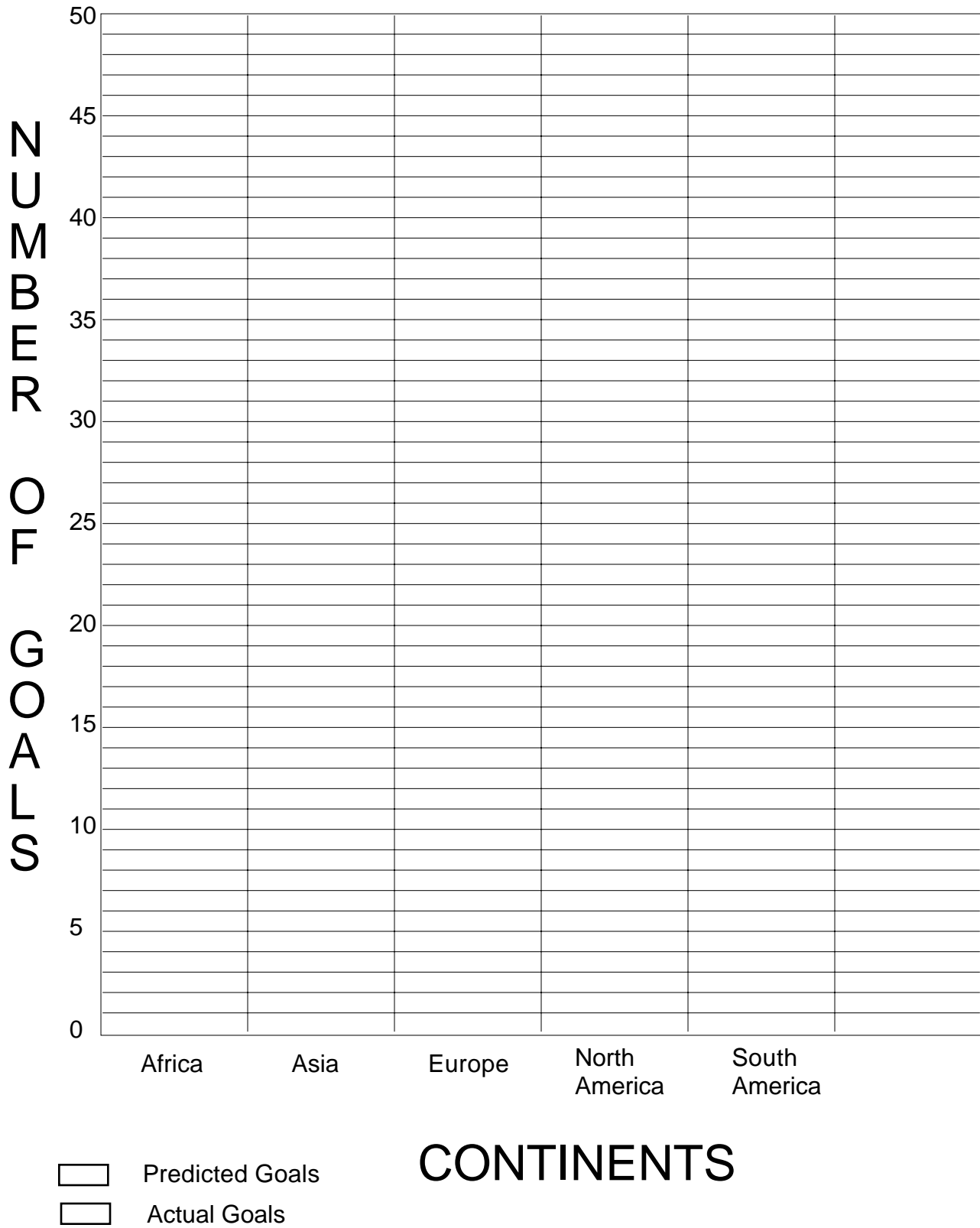
Africa	Asia	Europe	North America	South America

Totals:_____ _____ _____ _____ _____

2. Number of goals scored sorted by continent.

Africa	Asia	Europe	North America	South America

Totals:_____ _____ _____ _____ _____

Comparison of Number of Goals to Number of Countries

NUMBER OF GOALS

50

45

40

35

30

25

20

15

10

5

0

Africa   Asia   Europe   North America   South America

CONTINENTS

☐ Predicted Goals

☐ Actual Goals

Percent Error Calculation Worksheet

1. **Africa**

Actual Goals Scored: _____.   Predicted Goals Scored: _____.
Difference between Actual Goals and Predicted Goals: _____.
Difference divided by Predicted goals: _____ X 100 = _____ % Error.

2. **Asia**

Actual Goals Scored: _____.   Predicted Goals Scored: _____.
Difference between Actual Goals and Predicted Goals: _____.
Difference divided by Predicted goals: _____ X 100 = _____ % Error.

3. **Europe**

Actual Goals Scored: _____.   Predicted Goals Scored: _____.
Difference between Actual Goals and Predicted Goals: _____.
Difference divided by Predicted goals: _____ X 100 = _____ % Error.

4. **North America**

Actual Goals Scored: _____.   Predicted Goals Scored: _____.
Difference between Actual Goals and Predicted Goals: _____.
Difference divided by Predicted goals: _____ X 100 = _____ % Error.

5. **South America**

Actual Goals Scored: _____.   Predicted Goals Scored: _____.
Difference between Actual Goals and Predicted Goals: _____.
Difference divided by Predicted goals: _____ X 100 = _____ % Error.

Activity 4, Assessment

Worksheet #1

Section 1 and Section 2
- 3 points: All columns completed, countries/goals located correctly, results tabulated accurately
- 2 points: Most columns completed, countries located correctly, results tabulated accurately
- 1 point: Worksheet started but incomplete and/or mostly inaccurate

Worksheet #2

Double bar graph
- 3 points: Predicted and actual goals plotted correctly (matches worksheet 1), key is completed in different colors
- 2 points: Majority of predicted and actual goals plotted correctly (matches worksheet 1), key is completed in different colors
- 1 point: Graph started but incomplete and/or mostly inaccurate

Worksheet #3

Error percent
- 3 points: Predicted and actual goals transferred accurately from worksheet 1, difference between actual and predicted goals accurately calculated, correct division and calculation of percent error
- 2 points: Majority of predicted and actual goals transferred accurately from worksheet 1, difference between actual and predicted goals
- 1 point: Worksheet started but incomplete and/or mostly inaccurate

Writing Activity

Summation Paragraph
- 3 points: Correct punctuation, spelling , grammar; topic sentence explaining clear purpose of graph, error differences indicated, reasonable mathematical explanation for error percent difference
- 2 points: Majority of paragraph uses correct punctuation, spelling , grammar; has a topic sentence explaining the purpose of graph but not logical or clearly stated, some error differences indicated, some mathematical explanation for error percent difference offered
- 1 point: Paragraph is grammatically incorrect, no clear relevant purpose of the bar graph is offered, no reasonable explanation for error percent difference is offered

Activity 5
WRITTEN COMPONENT

Students should have completed one or more of the previous activities. However, they should have been given the assignment and the rubric at the beginning of the unit. This may be given as either a class or homework assignment. If a computer lab is available, students should be encouraged to use the word processing program.

WRITING ASSIGNMENT

After you have completed the class assignments in this unit, you will be required to do a writing assignment. This should be a one page, typed, double-spaced (150-200 words) article. It must have a topic sentence, a headline (title) and include information you have covered in the units.

You have been selected to write an article for your school newspaper on the 1998 World Cup Games and soccer. Using the topics studied in this unit, write an article which will be of interest to your fellow students.

Scoring

4 points - Within length limits
          No grammar, spelling, punctuation errors
          Included at least 8 points relating to worksheets
          Used many descriptive words
          Developed topic
          Catchy headline

3 points - Within length limits
          No more than 3 grammar, spelling, punctuation errors
          Included at least 5 points relating to worksheets
          Used some descriptive words
          Developed topic
          Headline

2 points - Outside length limits
          More than 3 grammar, spelling, punctuation errors
          Included at least 3 points related to worksheets
          No descriptive words
          Did not develop topic
          Headline

1 point - Outside length limits
          Many grammar, spelling, punctuation errors
          No descriptive words
          Did not develop topic
          No headline

0 points - No response

Data Sheet 4: World Cup 1998 Individual Player Statistics

Player	Country/Player #	Goals	Assists
Suker, Davor	HRV, 9	6	0
Batistuta, Gabriel	ARG, 9	5	0
Vieri, Christian	ITA, 21	5	0
Ronaldo	BRA, 9	4	3
Hernandez, Luis	MEX, 15	4	0
Salas, Marcelo	CHI, 11	4	0
Rivaldo	BRA, 10	4	2
Bergkamp, Dennis	HOL, 8	3	3
Bebeto	BRA, 20	3	2
Bierhoff, Oliver	GER, 20	3	2
Klinsmann, Jurgen	GER, 18	3	1
Cesar, Sampaio	BRA, 5	3	0
Henry, Thierry	FRA, 12	3	0
Hierro, Fernando	ESP, 6	2	3
Laudrup, Brian	DEN, 11	2	3
Baggio, Roberto	ITA, 18	2	2
Ortega, Ariel	ARG, 10	2	2
Thuram, Lilan	FRA, 15	2	2
Bartlett, Shaun	RSA, 9	2	1
Cocu, Philip	HOL, 11	2	1
De Boer, Ronald	HOL, 7	2	1
Pelaez, Ricardo	MEX, 9	2	1
Petit, Emmanuel	FRA, 17	2	1
Shearer, Alan	ENG, 9	2	1
Zidane, Zidane	ENG, 9	2	1
Bassir, Salaheddine	MOR, 14	2	0
Hadda, Abdeljilil	MOR, 9	2	0
Kiko	ESP, 19	2	0
kluivert	HOL, 9	2	0
Komljenovic, Slobodan	YUG, 13	2	0
Moldovan, Viorel	ROM, 9	2	0
Morientes, Fernando	ESP, 7	2	0
Owen, Michael	ENG, 20	2	0
Prosinecki, Robert	HRV, 8	2	0
Whitmore, Theodore	JAM, 11	2	0
Wilmots, Marc	BEL, 7	2	0
Blanco, Cuauhtemoc	MEX, 11	1	3
Djorkaeff, Youry	FRA, 6	1	3
Laudrup, Michael	DEN, 10	1	2
Adepoju, Mutiu	NGA, 8	1	1
Babangida, Tijani	NGA, 13	1	1
Di Biagio, Luigi	ITA, 14	1	1
El Hadji, Moustafa	MOR, 7	1	1
Ha, Seok Ju	KOR, 17	1	1
Ilie, Adrian	ROM, 11	1	1
Jarnie, Robert	HRV, 17	1	1
Lawal, Garba	NGA, 11	1	1
Lizarazu, Bixente	FRA, 3	1	1

Luis, Enrique	ESP, 21	1	1
Mihajlovic, Sinisa	YUG, 11	1	1
Moller, Peter	DEN, 18	1	1
Overmars, Marc	HOL, 14	1	1
Raul	ESP, 10	1	1
Sand, Ebbe	DEN, 19	1	1
Stanic, Mario	HRV, 13	1	1
Stojkovic, Dragan	YUG, 10	1	1
Trezeguet, David	FRA, 20	1	1
Al Jabar, Sami	KSA, 9	1	0
Al Tunian, Youssef	KSA, 15	1	0
Anderton, Darren	ENG, 14	1	0
Ayala, Celso	PAR, 5	1	0
Beckham, David	ENG, 7	1	0
Benitez, Miguel	PAR, 15	1	0
Blanc, Laurent	FRA, 5	1	0
Burley, Craig	SCO, 8	1	0
Cardozo, Jose	PAR, 9	1	0
Collins, John	SCO, 11	1	0
Davids, Edgar	HOL, 16	1	0
Dugarry, Christophe	FRA, 21	1	0
Earle, Robert	JAM, 16	1	0
Eggen, Dan	NOR, 15	1	0
Estili, Hamid	IRN, 9	1	0
Flo, Havard	NOR, 17	1	0
Flo, Tore Andre	NOR, 9	1	0
Garcia Aspe, Alberto	MEX, 8	1	0
Helveg, Thomas	DEN, 6	1	0
Herzog, Andreas	AUT, 10	1	0
Ikpeba, Victor	NGA, 20	1	0
Jorgensen, Lars	DEN, 21	1	0
Kostadinov, Emil	BGR, 7	1	0
Lopez, Claudio	ARG, 7	1	0
Mahdavi Kia, Medi	IRN, 2	1	0
Mboma, Patrick	CMR, 10	1	0
McBride, Brian	USA, 20	1	0
McCarthy, Benedict	RSA, 17	1	0
Mijatovic, Pedrag	YUG, 9	1	0
Moller, Andreas	GER, 7	1	0
Nakayama, Masahi	JPN, 9	1	0
Nielsen, Allan	DEN, 7	1	0
Nilis, Luc	BEL, 10	1	0
Njanka, Pierre	CMR, 6	1	0
Oliseh, Sunday	NGA, 15	1	0
Oruma, Wilson	NGA, 18	1	0
Petrescu, Dan	ROM, 2	1	0
Pineda, Hector	ARG, 4	1	0
Polster, Anton	AUT, 19	1	0
Preciado, Leider	COL, 21	1	0
Rekdal, Kjetil	NOR, 10	1	0
Rieper, Marc	DEN, 3	1	0

Scholes, Paul	ENG, 16	1	O
Sierra, Jose	CHI, 10	1	O
Souayah, Skander	TUN, 15	1	O
Van Hooijdonk, Pierre	HOL, 17	1	O
Vastic, Ivica	AUT, 9	1	O
Vlaovic, Goran	HRV, 19	1	O
Yoo, Sang Chul	KOR, 6	1	O
Zanetti, Javier	ARG, 22	1	O

Frequency Distribution Worksheet
(Answer Sheet)

1. Number of participating countries sorted by continent.

Africa	Asia	Europe		North America	South America
Morocco	Saudi Arabia	Norway	Belgium	Mexico	Brazil
Cameron	Korea	Scotland	Holland	U.S.	Chile
S. Africa	Japan	Austria	Germany	Jamaica	Paraguay
Nigeria	Iran	Italy	Yugoslavia		Columbia
Tunisia		Denmark	England		Argentina
		France	Romania		
		Bulgaria	Hungary		
		Spain			

Totals: <u>5</u>   <u>4</u>   <u>15</u>   <u>3</u>   <u>5</u>

2. Number of goals scored sorted by continent.

Africa	Asia	Europe		North America	South America
MOR (5)	KSA (2)	NOR (4)	BEL (3)	MEX (8)	BRA (14)
CMR (2)	KOR (2)	SCO (2)	HOL (12)	USA (1)	CHI (5)
RSA (3)	JPN (1)	AUT (3)	GER (7)	JAM (3)	PAR (3)
NGR (6)	IRN (2)	ITA (8)	YUG (5)		COL (1)
TUN (1)		DEN (9)	ENG (9)		ARG (10)
		FRA (12)	ROM (4)		
		BGR (1)	HRU (11)		
		ESP (8)			

Totals: <u>17</u>   <u>7</u>   <u>98</u>   <u>12</u>   <u>33</u>